Claims

[c1] 1.A thermoplastic composition, comprising:

about 10 to about 40 weight percent of a poly(arylene ether);

about 2 to about 35 weight percent of a homopolymer of an alkenyl aromatic monomer, wherein the weight ratio of the homopolymer of an alkenyl aromatic monomer to the poly(arylene ether) is at least about 1:10;

about 20 to about 50 weight percent of a polyolefin;

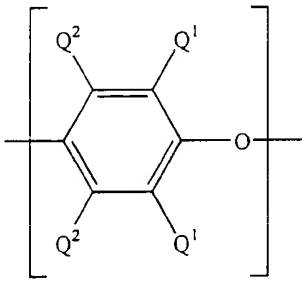
about 1 to about 12 weight percent of a hydrogenated block copolymer of alkenyl aromatic compound and a conjugated diene having an alkenyl aromatic content of 40 to about 90 weight percent;

about 1 to about 15 weight percent of an unhydrogenated block copolymer of alkenyl aromatic compound and a conjugated diene; and

20 weight percent to about 40 weight percent of glass fibers;

wherein all weight percents are based on the total weight of the composition.

[c2] 2.The thermoplastic composition of Claim 1, wherein the poly(arylene ether) comprises a plurality of structural units of the formula

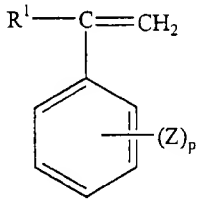


wherein for each structural unit, each Q^1 is independently halogen, primary or secondary C_1-C_8 alkyl, phenyl, C_1-C_8 haloalkyl, C_1-C_8 aminoalkyl, C_1-C_8 hydrocarbonoxy, or C_2-C_8 halohydrocarbonoxy wherein at least two carbon atoms separate the halogen and oxygen atoms; and each Q^2 is independently hydrogen, halogen, primary or secondary C_1-C_8 alkyl, phenyl, C_1-C_8 haloalkyl, C_1-C_8 aminoalkyl, C_1-C_8 hydrocarbonoxy, or C_2-C_8 halohydrocarbonoxy wherein at least two carbon atoms separate the halogen and

3.The thermoplastic composition of Claim 2, wherein each Q^1 is independently C_1-C_4 alkyl or phenyl, and each Q^2 is independently hydrogen or methyl.

[c4] 4.The thermoplastic composition of Claim 1, wherein the poly(arylene ether) comprises a copolymer of 2,6-dimethylphenol and 2,3,6-trimethylphenol.

[c5] 5.The composition of Claim 1, wherein the homopolymer of an alkenyl aromatic monomer of the formula



wherein R^1 is hydrogen, C_1-C_8 alkyl, or halogen; Z is vinyl, halogen, or C_1-C_8 alkyl; and p is 0 to 5.

[c6] 6.The composition of Claim 1, wherein the homopolymer of an alkenyl aromatic monomer comprises homopolystyrene.

[c7] 7.The composition of Claim 1, wherein the homopolymer of an alkenyl aromatic monomer comprises atactic homopolystyrene.

[c8] 8.The thermoplastic composition of Claim 1, wherein the polyolefin comprises a homopolymer or copolymer having at least about 80 weight percent of units derived from polymerization of ethylene, propylene, butylene, or a mixture thereof.

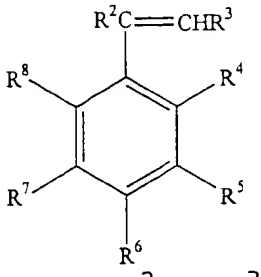
[c9] 9.The thermoplastic composition of Claim 1, wherein the polyolefin is a propylene polymer; and wherein the propylene polymer comprises a homopolymer of polypropylene, or a random, graft, or block copolymer of propylene and at least one olefin selected from ethylene and C_4-C_{10} alpha-olefins, with the proviso that the copolymer comprises at least about 80 weight percent of repeating units derived from propylene.

[c10] 10.The thermoplastic composition of Claim 1, wherein the polyolefin comprises a homopolypropylene having a crystalline content of at least about 20%.

[c11]

polymer comprises

(A) at least one block derived from an alkenyl aromatic compound having the formula



wherein R^2 and R^3 each represent a hydrogen atom, a C_1-C_8 alkyl group, or a C_2-C_8 alkenyl group; R^4 and R^8 each represent a hydrogen atom, a C_1-C_8 alkyl group, a chlorine atom, or a bromine atom; and R^5-R^7 each independently represent a hydrogen atom, a C_1-C_8 alkyl group, or a C_2-C_8 alkenyl group, or R^4 and R^5 are taken together with the central aromatic ring to form a naphthyl group, or R^5 and R^6 are taken together with the central aromatic ring to form a naphthyl group including; and

(B) at least one block derived from a conjugated diene, in which the aliphatic unsaturated group content in the block (B) is reduced by hydrogenation.

[c12] 12.The thermoplastic composition of Claim 1, wherein the hydrogenated block copolymer comprises a styrene-(ethylene-butylene)-styrene triblock copolymer.

[c13] 13.The thermoplastic composition of Claim 1, wherein the hydrogenated block copolymer has a styrene content of about 50 to about 85 weight percent.

[c14] 14.The thermoplastic composition of Claim 1, wherein the unhydrogenated block copolymer comprises a styrene-butadiene diblock copolymer or a styrene-butadiene-styrene triblock copolymer.

[c15] 15.The thermoplastic composition of Claim 1, wherein the glass fibers have a diameter of about 2 to about 25 micrometers.

[c16] 16.The thermoplastic composition of Claim 1, further comprising about 0.5 to about 10 weight percent of a polypropylene-polystyrene graft copolymer having a propylene polymer backbone and one or more styrene polymer grafts.

propylene polymer backbone and about 90 to about 10 weight percent styrene polymer grafts.

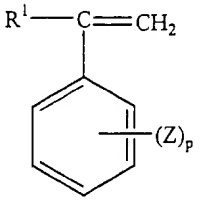
[c18] 18.The composition of Claim 1, further comprising about 1 to about 15 weight percent of an ethylene/alpha-olefin elastomeric copolymer.

[c19] 19.The thermoplastic composition of Claim 18, wherein the ethylene/alpha-olefin elastomeric copolymer comprises a copolymer of ethylene and at least one C_3-C_{10} alpha-olefin.

[c20] 20.The thermoplastic composition of Claim 18, wherein the ethylene/alpha-olefin elastomeric copolymer comprises an ethylene-butylene rubber, an ethylene-propylene rubber, or a mixture thereof.

[c21] 21.The composition of Claim 1, further comprising about 1 to about 40 weight percent, based on the total weight of the composition, of a rubber-modified poly (alkenyl aromatic) resin comprising a polymer derived from at least one alkenyl aromatic monomer, and further comprising a rubber modifier in the form of a blend and/or a graft.

[c22] 22.The thermoplastic composition of Claim 21, wherein the alkenyl aromatic monomer has the formula



wherein R^1 is hydrogen, C_1-C_8 alkyl, or halogen; Z is vinyl, halogen, or C_1-C_8 alkyl; and p is 0 to 5.

[c23] 23.The thermoplastic composition of Claim 21, wherein the rubber modifier comprises a polymerization product of at least one C_4-C_{10} nonaromatic diene monomer.

[c24] 24.The composition of Claim 1, wherein the composition is substantially free of a rubber-modified poly(alkenyl aromatic) resin.

[c26] 26.The thermoplastic composition of Claim 1, further comprising about 1 to about

20 weight percent of a hydrogenated block copolymer of an alkenyl aromatic compound and a conjugated diene, wherein the hydrogenated block copolymer has an alkenyl aromatic content of about 10 to less than 40 weight percent.

[c27] 27.The thermoplastic composition of Claim 1, further comprising an additive selected from the group consisting of stabilizers, mold release agents, processing aids, flame retardants, drip retardants, nucleating agents, UV blockers, dyes, pigments, particulate fillers, antioxidants, anti-static agents, blowing agents, and combinations comprising at least one of the foregoing additives.

[c28] 28.The composition of Claim 1, wherein the composition after molding has a flexural modulus measured at 23 ° C according to ASTM D790 greater than 500,000 pounds per square inch.

[c29] 29.The composition of Claim 1, wherein the composition after molding has an Izod Notched Impact strength measured at 23 ° C according to ASTM D256 of at least about 1 foot-pound per inch.

[c30] 30.The composition of Claim 1, wherein the composition after molding has an Izod Notched Impact strength measured at 23 ° C according to ASTM D256 of at least about 2 foot-pounds per inch.

[c31] 31.The composition of Claim 1, wherein the composition after molding has an Izod Notched Impact strength measured at 23 ° C according to ASTM D256 of at least about 3 foot-pounds per inch.

[c32] 32.The composition of Claim 1, wherein the composition after molding has a heat distortion temperature measured at 66 psi according to ASTM D648 at least about 275 ° F.

[c33] 33.The composition of Claim 1, wherein the composition after molding has a flexural modulus measured at 23 ° C according to ASTM D790 greater than

[c34] 34.The composition of Claim 1, wherein the composition after molding has a flexural modulus measured at 23 ° C according to ASTM D790 of at least about

1,000,000 pounds per square inch and an Izod Notched Impact strength measured at 23 ° C according to ASTM D256 of at least about 1.5 foot-pounds per inch.

[c35] 35.A thermoplastic composition, comprising:
about 10 to about 40 weight percent of a poly(arylene ether) that is the polymerization product of 2,6-dimethylphenol, 2,3,6-trimethylphenol, or a combination thereof;
about 2 to about 35 weight percent of a homopolymer of an alkenyl aromatic monomer, wherein the weight ratio of the homopolymer of an alkenyl aromatic monomer to the poly(arylene ether) is at least about 1:10;
about 20 to about 50 weight percent of a polyolefin;
about 0.1 to about 10 weight percent of a polyolefin-graft-cyclic anhydride copolymer;
about 1 to about 12 weight percent of a hydrogenated block copolymer of alkenyl aromatic compound and a conjugated diene having an alkenyl aromatic content of 40 to about 90 weight percent;
about 1 to about 15 weight percent of an unhydrogenated block copolymer of alkenyl aromatic compound and a conjugated diene; and
20 weight percent to about 40 weight percent of glass fibers;
wherein all weight percents are based on the total weight of the composition.

[c36] 36.A thermoplastic composition, comprising:
about 10 to about 40 weight percent of a poly(arylene ether) that is the polymerization product of 2,6-dimethylphenol, 2,3,6-trimethylphenol, or a combination thereof;
about 2 to about 35 weight percent of a homopolymer of an alkenyl aromatic monomer, wherein the weight ratio of the homopolymer of an alkenyl aromatic monomer to the poly(arylene ether) is at least about 1:10;
about 20 to about 50 weight percent of a polyolefin;
about 1 to about 12 weight percent of a hydrogenated block copolymer of alkenyl

[illegible] to about [illegible] weight percent

about 1 to about 15 weight percent of an unhydrogenated block copolymer of alkenyl aromatic compound and a conjugated diene;

about 1 to about 15 weight percent of an ethylene/alpha-olefin elastomeric copolymer; and

20 to about 40 weight percent of glass fibers;

wherein all weight percents are based on the total weight of the composition.

[c37] 37.A thermoplastic composition, comprising:

about 15 to about 35 weight percent of a poly(arylene ether) that is the polymerization product of 2,6-dimethylphenol, 2,3,6-trimethylphenol, or a combination thereof;

about 3.5 to about 20 weight percent of a homopolymer of a homopolystyrene;

about 20 to about 40 weight percent of a homopolypropylene;

about 2 to about 10 weight percent of a styrene-(ethylene-butylene)-styrene triblock copolymer having an alkenyl aromatic content of about 55 to about 75 weight percent;

about 1 to about 7 weight percent of a styrene-butadiene-styrene triblock copolymer;

about 1 to about 10 weight percent of an ethylene-butylene rubber, an ethylene-propylene rubber, or a mixture thereof; and

20 to about 40 weight percent of glass fibers having a diameter of about 10 to about 20 micrometers;

wherein all weight percents are based on the total weight of the composition.

[c38] 38.A thermoplastic composition, comprising the reaction product of:

about 10 to about 40 weight percent of a poly(arylene ether);

about 2 to about 35 weight percent of a homopolymer of an alkenyl aromatic monomer, wherein the weight ratio of the homopolymer of an alkenyl aromatic monomer to the poly(arylene ether) is at least about 1:10;

about 20 to about 50 weight percent of a polyolefin;

about 1 to about 12 weight percent of a hydrogenated block copolymer of alkenyl aromatic compound and a conjugated diene having an alkenyl aromatic content of

about [illegible] to about [illegible] weight percent of an unhydrogenated block copolymer of alkenyl aromatic compound and a conjugated diene; and

20 weight percent to about 40 weight percent of glass fibers:

wherein all weight percents are based on the total weight of the composition.

[c39] 39.An article comprising the composition of Claim 38.

[c40] 40.An automotive component comprising the composition of Claim 38.

[c41] 41.An automotive front-end module comprising the composition of Claim 38.

[c42] 42.An automotive grill opening reinforcement comprising the composition of Claim 38.

[c43] 43.A sheet comprising the composition of Claim 38.